REMARKS

Claims 1-11 are pending. Reconsideration and allowance are respectfully requested.

Allowable Subject Matter

Claim 1-11 are indicated as having allowable subject matter.

Filing Receipt

Applicants have submitted herewith a request for a corrected filing receipt because the filing date of this Application is incorrect. Specifically, the filing date is listed as August 24, 2004, and it should be July 16, 2003.

Amendments to the Claims

Claims 1-3 have been amended to:

- remove the indexes (i.e., (a), (b), etc.) and the references to these indexes because index (a) was repeated in Claims 2 and 3 and could create confusion;

- replace "a stream" with "the stream" because "a stream" is recited in the preamble of Claim 1;.

- replace "said" with "the"; and

- include the term "line spectral frequencies" which corresponds to "LSF."

Claims 4-11 have been amended as follows, where strikethrough and underlines respectively denote deletions and addition from Claims 4-11 (as previously presented):

4.   (Twice Amended) A method of noise suppression filtering for a sequence of frames ~~if~~ of noisy speech, comprising:
filtering a frame of noisy speech that includes the sub-steps of:

estimating a noise power spectrum, $P_{NOISE}(\omega)$, of the frame of noisy speech, wherein the variable ω is the discrete frequency;

computing a noisy speech power spectrum for the frame of noisy speech;

smoothing noisy speech power spectrum with respect to the variable ω to yield a smoothed noisy speech power spectrum, $P_{SMOOTHEDNOISYSPEECH}(\omega)$, for the frame of noisy speech;

defining a noise-suppression filter using the noisy speech power spectrum, and the smoothed noisy speech power spectrum;

filtering the frame of noisy speech with the noise suppression filter; and

repeating the step of filtering for each frame of noisy speech for a plurality of frames of noisy speech.

5.   (Twice Amended) The method of ~~Claim~~ claim 4, wherein the sub-step of smoothing is a convolution with respect to the variable ω of the noisy speech power spectrum and a window function, $W(\omega)$.

6.   (Twice Amended) The method of ~~Claim~~ claim 4, wherein the noise suppression filter includes the term:

$$1 - \frac{cP_{NOISE}(\omega)}{P_{SMOOTHEDNOISYSPEECH}(\omega)},$$

wherein c is a positive constant.

7.   (Twice Amended) The method of ~~Claim~~ claim 6, wherein c is equal to 1.

8.   (Twice Amended) The method of ~~Claim~~ claim 6, wherein c is equal to 4.

9.   (Twice Amended) The method of ~~Claim~~ claim 4, wherein the noise suppression filter includes the term:

$$\max\left\{M^2, 1 - \frac{cP_{NOISE}(\omega)}{P_{SMOOTHEDNOISYSPEECH}(\omega)}\right\},$$

wherein c and M are a positive constant.

10.   (Twice Amended) The method of ~~Claim~~ claim 4, wherein the sub-step of estimating further comprises the sub-steps of:

equating the noise power spectrum of the frame to a product of a first constant and a noise power spectrum estimate of a prior frame when the smoothed noisy speech power spectrum of the frame is less than the product of the noise power spectrum estimate of the prior frame and the first constant;

equating the noise power spectrum of the frame to the smoothed noisy speech power spectrum of the frame when the smoothed noisy speech power spectrum of the frame is greater than or equal to the product of the noise power spectrum estimate of the prior frame and the first constant and when the smoothed noisy speech power spectrum of

the frame is less than or equal to the product of the noise power spectrum estimate of the prior frame and a second constant, wherein the first and second constants are positive, and wherein the product of the first and second constants is less than one; and

equating the noise power spectrum of the frame to the product of the noise power spectrum estimate of the prior frame and the second constant, when the smoothed noisy speech power spectrum of the frame is greater than the product of the noise power spectrum estimate of the prior frame and the second constant.

11.   (Twice Amended) The method of ~~Claim~~ claim 10, wherein the first constant is 0.978 and the second constant is 1.006.

Rejections under 35 U.S.C. §112

Claim 1 stand rejected under 35 U.S.C. §112, second paragraph, for assertedly being indefinite. Insofar as it may be applied to Claim 1, this rejection has been overcome because "said flames" has been replaced with "the frames." Accordingly, Applicants respectfully request that the rejection of Claim 1 under 35 U.S.C. §112, second paragraph, be withdrawn.

Rejections under 35 U.S.C. §101

Claims 1-11 stand rejected under 35 U.S.C. §101 for assertedly being directed to non-statutory subject matter. Insofar as they may be applied to the claims, these rejections are respectfully traversed.

"[T]he machine-or-transformation test is a useful and important clue, an investigative tool, for determining whether some claimed inventions are processes under §101[, but it] is not the sole test for deciding whether an invention is a patent-eligible 'process.'" *Bilski et al. v. Kappos*, No. 08-964, slip op. at 8 (June 28, 2010). "In searching for a limiting principle, [however,] precedents on the unpatentability of abstract ideas provide useful tools." *Id.* at 12. These precedents indicate that "an application of a law of nature of mathematical formula to a known structure or process may well

be deserving of patent protection." *Id.* at 14 (quoting *Diamond v. Diehr*, 450 U.S. 175, 187 (1981)). However, "'limit[ing] the use of a formula to a particular technological environment' or adding 'insignificant postsolution activity'" would not qualify as patentable subject matter. *Id.* (quoting *Diehr*, 450 U.S. at 191-192). Here, the Examiner's analysis is incorrect because (1) the Examiner rigidly applies the "machine-or-transformation" test; and (2) the Examiner misapprehends the scope of Claims 1-11.

At page 3 of the Office Action, the Examiner states that "a statutory 'process' under 35 USC 101 **_must_** (a) tied to another statutory category (such as a manufacture or machine), or (b) transform underlying subject matter (such as an article or material) to a different state or thing." (Emphasis added). As a result, it is clear that the Examiner rigidly applied the machine-or-transformation test. However, the Supreme Court in *Bilski* indicated that it is not necessary to satisfy the machine-or-transformation test; instead, the Examiner should have examined Claims 1-11 to determine whether claimed inventions are an application of a mathematical formula or law of nature, so long as there is not insignificant post solution activity. Therefore, Applicants respectfully request that the rejections of Claims 1-11 under 35 U.S.C. §101 be withdrawn because the rejections are improper.

Assuming, *arguendo,* however, that the Examiner's application of the machine-or-transformation test was proper or that the Examiner's applied the correct test, Claims 1-11 would quality as being directed toward statutory subject matter under 35 U.S.C. §101 because the Examiner misapprehends the scope of the claims. Contrary to the Examiner's assertions, Claims 1-11 are inherently tied to a machine. As the Examiner well understands, Claims 1-13 are not directed toward human-based or business methods (i.e., related to contracts, financial instruments, and so forth) that are simply enhanced by machines so as to constitute insignificant post-solution activity. Claims 1-13 are directed toward filtering audio signals or speech, which is evidenced by the

preambles of Claims 1 and 4. Each frame (which is a numerical representation of a portion of a data stream) has various mathematical formulas applied to the frame to perform the filtering, and again, as the Examiner well understands, data rates for audio signals or speech are extremely high, so high in fact that performing the steps of Claim 1 or 4, for example, is virtually impossible to perform these step tangible result without a machine. Therefore, it is clearly that Claims 1-11 do, in fact, satisfy the machine-or-transformation test and are an application of a mathematic formula or law of nature. Accordingly, Applicants respectfully request that the rejections of Claims 1-11 under 35 U.S.C. §101 be withdrawn.

.*Conclusion*

Applicants respectfully request full allowance of Claims 1-11.

Applicants have included a payment of $130 to cover a one-month extension of time fee. In the event that any fees are due, the Commissioner is hereby authorized to charge any required fees due (other than issue fees), and to credit any overpayment made, in connection with the filing of this paper to Deposit Account 20-0668 of Texas Instruments Incorporated.

Should the Examiner require any further clarification to place this application in condition for allowance, the Examiner is invited to telephone the undersigned at the number listed below.

Respectfully submitted,

/John J. Patti/

Dated: July 9, 2010

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EXHIBIT A
STATUS OF PENDING CLAIMS AND SUPPORT FOR AMENDMENTS

Claims 1-3 are pending in this reissue application in their original form as issued in U.S. Patent No. 6,263,307. Claims 4-11 are pending in this reissue application as currently amended herein. Support for these claims and the amendments thereto are as follows:

Claim 4 is supported by the specification at Col. 8, l. 10 – Col. 9, l. 25.

Claim 5 is supported by the specification at Col. 8, l. 10 – Col. 9, l. 25.

Claim 6 is supported by the specification at Col. 8, l. 10 – Col. 9, l. 25.

Claim 7 is supported by the specification at Col. 8, l. 10 – Col. 9, l. 25.

Claim 8 is supported by the specification at Col. 8, l. 10 – Col. 9, l. 25.

Claim 9 is supported by the specification at Col. 8, l. 10 – Col. 9, l. 25.

Claim 10 is supported by the specification at Col. 8, l. 10 – Col. 9, l. 25.

Claim 11 is supported by the specification at Col. 8, l. 10 – Col. 9, l. 25.